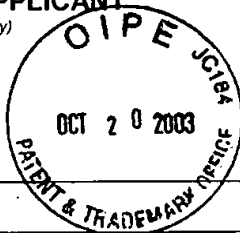


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Application Number	09/945507
Filing Date	August 30, 2001
First Named Inventor	Forbes, Leonard
Group Art Unit	2824
Examiner Name	Dinh, Son

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Attorney Docket No: 1303.014US1

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US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
41	US-01/0013621	08/01/2001	Kazuo, Nakazato	257	314	
	US-2002/0106536	08/08/2002	Lee, Jongho, et al.	428	702	02/02/2001
	US-2002/0137250	09/26/2002	Nguyen, B., et al.	438	53	03/15/2002
	US-4,295,150	10/13/1981	Adam, Fritz	357	54	10/01/1979
	US-4,757,360	07/12/1988	Faraone, Lorenzo, et al.	257	317	07/06/1983
	US-5,042,011	08/20/1991	Casper, Stephen L., et al.	365	205	05/22/1989
	US-5,071,782	12/10/1991	Mori, Kiyoshi	437	48	06/28/1990
	US-5,073,519	12/01/1991	Rodder, Mark	438	269	
41	US-5,280,205	06/18/1994	Green, Robert S., et al.	307	530	04/16/1992
	US-5,399,516	03/21/1995	Bergendahl, A, et al.	437	43	09/21/1992
	US-5,418,389	05/23/1995	Watanabe, Y.	257	295	11/09/1993
	US-5,497,494	03/05/1996	Combs, J, et al.	395	750	07/23/1993
	US-5,498,558	03/12/1996	Kapoor, A	437	43	05/06/1994
	US-5,508,544	04/16/1996	Shah, P. L.	257	316	09/27/1994
	US-5,600,592	02/04/1997	Atsumi, S., et al.	365	185.18	05/08/1995
	US-5,618,575	04/08/1997	Peter, Gunter	427	8	04/21/1995
	US-5,619,642	04/08/1997	Nielsen, M, et al.	395	182.04	12/23/1994
41	US-5,627,785	05/06/1997	Gilliam, Gary R., et al.	365	189.01	03/15/1996
	US-5,677,867	10/14/1997	Hazani, E.	365	185	06/30/1995
	US-5,880,991	03/09/1999	Hsu, L, et al.	365	182	04/14/1997
	US-5,923,056	07/13/1999	Lee, Woo-Hyeong, et al.	257	192	03/12/1998
	US-5,986,932	11/16/1999	Ratnakumar, K. N., et al.	365	185.07	06/30/1997
	US-5,991,225	11/23/1999	Forbes, Leonard, et al.	365	230.06	02/27/1998
	US-6,025,228	02/15/2000	Ibok, E., et al.	438	261	11/25/1997
	US-6,069,380	05/30/2000	Chou, et al.	257	315	07/25/1997
	US-6,069,816	05/30/2000	Nishimura, Kiyoshi	365	145	11/24/1998
	US-6,124,729	09/26/2000	Noble, Wendell P., et al.	326	41	02/27/1998
41	US-6,141,238	10/31/2000	Forbes, L., et al.	365	145	08/30/1999
	US-6,141,248	10/31/2000	Forbes, Leonard, et al.	365	185.08	07/29/1999
	US-6,153,468	11/28/2000	Forbes, Leonard, et al.	438	257	05/17/1999
	US-6,163,049	12/19/2000	Bui, N. D.	257	321	10/13/1998
	US-6,210,999	04/03/2001	Gardner, et al.	438	183	12/04/1998
	US-6,229,175	05/08/2001	Uchida, Hidetsugu	257	315	03/19/1999
	US-6,238,976	05/29/2001	Noble, Wendell P., et al.	438	259	02/27/1998
	US-6,246,606	06/12/2001	Forbes, Leonard, et al.	365	185.03	09/02/1999
	US-6,249,020	06/19/2001	Forbes, Leonard, et al.	257	315	08/27/1998
	US-6,249,460	06/19/2001	Forbes, L., et al.	365	185.28	02/28/2000
	US-6,307,775	10/23/2001	Forbes, L., et al.	365	185.01	08/27/1998
	US-6,323,844	11/27/2001	Yeh, Fu-Kuo, et al.	345	166	08/11/1997
41	US-6,351,411	02/26/2002	Forbes, Leonard, et al.	365	182	06/12/2001

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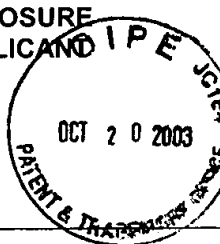
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Application Number	09/945597
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First Named Inventor	Forbes, Leonard
Group Art Unit	2824
Examiner Name	Dinh Son

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US-6,424,001	07/23/2002	Forbes, L., et al.	257	315	02/09/2001
US-6,461,931	10/08/2002	Eldridge, Jerome M.	438	398	08/29/2000
US-6,541,280	04/01/2003	Kaushik, et al.			03/20/2001
US-6,586,797	07/01/2003	Forbes, Leonard, et al.	257	325	08/30/2001

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²
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OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
SN		AARIK, JAAN, et al., "Texture development in nanocrystalline hafnium dioxide thin films grown by atomic layer deposition", <u>Journal of Crystal Growth</u> , (2000), pp. 105-113	
		EIERDAL, L., et al., "Interaction of oxygen with Ni(110) studied by scanning tunneling microscopy", <u>Surface Science</u> , 312, (1994), pp. 31-53	
		ELDRIDGE, J., et al., "Analysis of Ultrathin Oxide Growth on Indium", <u>Thin Solid Films</u> , 12, (1972), pp. 447-451	
		ELDRIDGE, J.M., et al., "The Growth of Thin PbO Layers on Lead Films", <u>Surface Science</u> Vol. 40, (1973), 512-530	
		FERGUSON, J D., et al., "Atomic layer deposition of Al ₂ O ₃ and SiO ₂ on BN particles using sequential surface reaction", <u>Applied Surface Science</u> , (2000), pp. 280-292	
		GRIMBLLOT, J., et al., "I. Interaction of Al films with O ₂ at low pressures", <u>J. Electro. Chem. Soc.</u> , Vol. 129, No. 10, (1982), pp. 2366-2368	
SN		GRIMBLLOT, J., et al., "II. Oxidation of Aluminum Films", <u>J. Electrochem.</u> , 129, (1982), pp. 2369-2372	
		GUO, X., "High Quality Ultra-thin (1.5 nm) TiO ₂ /Si ₃ N ₄ Gate Dielectric for Deep Sub-micron CMOS Technology", <u>IEDM Technical Digest</u> , (1999), pp. 137-140	
		HODGES, D. A., et al., <u>Analysis and Design of Digital Integrated Circuits</u> , McGraw-Hill Book Company, 2nd Edition, (1988), 394-396	
		HODGES, D. A., <u>Analysis and Design of Digital Integrated Circuits, 2nd Edition</u> , McGraw-Hill Publishing. New York, (1988), pp. 354-357	
		ITOKAWA, H., "Determination of Bandgap and Energy Band Alignment for High-Dielectric-Constant Gate Insulators Using High-Resolution X-ray Photoelectron Spectroscopy", <u>Extended Abstracts of the 1999 International Conference on Solid State Devices and Materials</u> , (1999), pp. 158-159	
SN		KIM, YONG S., et al., "Effect of rapid thermal annealing on the structure and the electrical properties of atomic-layer-deposited Ta ₂ O ₅ films", <u>Journal of the Korean Physical Society</u> , (December 2000), pp. 975-979	

EXAMINER

SON DINH

DATE CONSIDERED

10/31/03

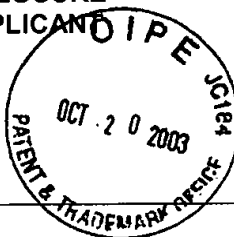
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Examiner Name	Dinh, Son	

Sheet 3 of 4

Attorney Docket No: 1303.014US1

57	KIM, H. , "Leakage current and electrical breakdown in metal-organic chemical vapor deposited TiO ₂ dielectrics on silicon substrates", <u>Applied Phys. Lett.</u> , 69(25), (1996),pp. 3860-3862	
	KIM, YEONG K., et al., "Novel capacitor technology for high density stand-alone and embedded DRAMs", <u>IEEE</u> , (2000),4 pages	
	KUBASCHEWSKI, O. , et al., <u>Oxidation of Metals and Alloys, Second Edition</u> , Butterworths, London,(1962),pp. 1-3, 5,6, 8-12, 24, 36-39	
	KUKLI, KAUPO , "Atomic Layer Deposition of Titanium Oxide from TiI ₄ and H ₂ O ₂ ", <u>Chemical Vapor Deposition</u> , (2000),pp. 303-310	
	KUKLI, KAUPO , et al., "Atomic layer deposition of zirconium oxide from zirconium tetraiodide, water and hydrogen peroxide", <u>Journal of Crystal Growth</u> , (2001),pp. 262-272	
	KUKLI, K. , "Development of Dielectric Properties of Niobium Oxide, Tantalum Oxide, and Aluminum Oxide Based Nanolayered Materials", <u>Journal of the Electrochemical Society</u> , 148(2), (2001),pp. F35-F41	
57	KUKLI, KAUPO , et al., "Real-time monitoring in atomic layer deposition of TiO ₂ from TiI ₄ and H ₂ O-H ₂ O ₂ ", <u>American Chemical Society</u> , (2000),pp. 8122-8128	
	KWO, J. , "Properties of high k gate dielectrics Gd ₂ O ₃ and Y ₂ O ₃ for Si", <u>Journal of Applied Physics</u> , 89(7), (2001),pp. 3920-3927	
	LEE, J. , "Effect of Polysilicon Gate on the Flatband Voltage Shift and Mobility Degradation for ALD-Al ₂ O ₃ Gate Dielectric", <u>IEDM</u> , (2000),pp. 645-648	
	LUAN, H. , et al., "High Quality Ta ₂ O ₅ Gate Dielectrics with Tox,eq<10A", <u>IEDM</u> , (1999),pp. 141-144	
	MA, T P., et al., "Tunneling leakage current in ultrathin (<4 nm) nitride/oxide stack dielectrics", <u>IEEE Electron Device Letters</u> , vol. 19, no. 10,(1998),pp. 388-390	
	MA, Y. , "Zirconium Oxide Based Gate Dielectrics with equivalents Oxide Thickness of Less Than 1.0 nm and Performance of Submicron MOSFET using a Nitride Gate Replacement Process", <u>IEDM - Technical Digest</u> , (1999),pp. 149-152	
	MARSHALEK, R. , et al., "Photoresponse Characteristics of Thin-Film Nickel-Nickel Oxide-Nickel Tunneling Junctions", <u>IEEE Journal of Quantum Electronics</u> , QE-19(4), (1983),pp. 743-754	
	MULLER, H. , "Electrical and Optical Properties of Sputtered In ₂ O ₃ Films", <u>Physica Status Solidi</u> , 27(2), (1968),pp.723-731	
	PARANJPE, AJIT , et al., "Atomic layer deposition of AlO _x for thin film head gap application", <u>Journal of the Electrochemical Society</u> , (September 2001),pp. 465-471	
	QI, W , "MOSCAP and MOSFET characteristics using ZrO ₂ gate dielectric deposited directly on Si", <u>IEDM - Technical Digest</u> , (1999),145-148	
57	ROBERTSON, J. , "Band offsets of wide-band-gap oxides and implications for future electronic devices", <u>Journal Vac. Sci. Technol. B</u> , 18(3), (2000),pp. 1785-1791	

EXAMINER

SON DINH

DATE CONSIDERED

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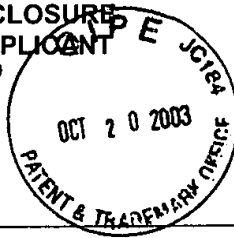
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Group Art Unit	2824
Examiner Name	Dinh, SON

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Sheet 4 of 4

Attorney Docket No: 1303.014US1

41		ROBERTSON, J. , "Schottky barrier heights of tantalum oxide, barium strontium-titanate, lead titanate, and strontium bismuth tantalate", <u>Applied Physics Letters</u> , 74(8), (1999),pp. 1168-1170	
		SHI, Y. , "Tunneling Leakage Current in Ultrathin (<4 nm) Nitride/Oxide Stack Dielectrics", <u>IEEE Electron Device Letters</u> , 19(10), (Oct. 1998),pp. 388-390	
		SMITH, RYAN C., et al., "Chemical vapour deposition of the oxides of titanium, zirconium and hafnium for use as high-k materials in microelectronic devices. A carbon-free precursor for the synthesis of hafnium dioxide", <u>Advanced Materials for Optics and Electronics</u> , (2000),2 pages	
		SWALIN, R. , "Equilibrium between Phases of Variable Composition", <u>Thermodynamics of Solids, 2nd Edition</u> , (1972),pp. 165-180	
		YAN, J. , et al., "Structural and electrical characterization of TiO2 grown from titanium tetrakis-isopropoxide (TTIP) and TTIP/H2O ambients", <u>Journal Vac. Sci. Technol. B</u> , 14(3), (1996),pp. 1706-1711	
41		ZHANG, "Atomic Layer Deposition of High Dielectric Constant Nanolaminates", <u>Journal of The Electrochemical Society</u> , 148(4),(2001),F63-F66	

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